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LOYOLA UNIVERSITY CHICAGO

THE EFFECTS OF DECISION FRAMING AND PERSUASIVE MESSAGE  
APPEALS ON THE COOPERATION RATE OF INDIVIDUALS FACED WITH A  
SOCIAL DILEMMA

A THESIS SUBMITTED TO THE FACULTY OF THE DIVISION OF THE  
SOCIAL SCIENCES IN CANDIDACY FOR THE DEGREE OF MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

BY  
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## CHAPTER 1

### INTRODUCTION

Environmental issues such as recycling, energy conservation, and resource preservation have been studied by many academic disciplines because of the obvious importance and impact the environment has on our lives. For example, environmental issues and concerns have been studied by economists, sociologists, ecologists, and social psychologists (e.g., Marwell & Ames, 1979; Edney, 1980). Much of their research frames environmental problems in terms of social dilemmas.

A social dilemma is characterized as a situation in which the reasonable individual pursuit of a relatively short term gain can lead to collective disaster in the long run. In other words, a social dilemma is a situation that poses an individual with a conflict between pursuing his/her individual gain and pursuing the gain of a group to which he/she belongs (Fleishman, 1988). Because the pursued gain is common or accessible to all, individuals can still acquire and enjoy gains by getting a "free-ride" on the efforts of others. Also, an individual that contributes to the



collective good while others do not, can feel like a "sucker". Therefore, it is always best or more profitable for the individual to act selfishly regardless of what others do. However, if everyone adopts this preferable or "dominant" strategy, no one will be contributing to the collective good, and collective disaster is inevitable.

Hardin's (1968) "Tragedy of the Commons" is a classic example of a social dilemma and the inevitable disaster of collective selfish behavior. This model entails a grazing ground for cattle that is accessible to a group of individual farmers. Each farmer can increase their profit by adding another animal to the collective pasture. The choice of adding another animal involves cost in terms of the amount of pasture consumed and damaged, but these costs are absorbed by the collective group of farmers and not any one individual farmer. Because there is the ability to ignore some of the costs of their actions, each farmer will be more likely to keep adding cattle, and since the opportunity exists for all, that is what they all will do. However, individual benefits are likely to be much less than the aggregate costs absorbed by the over use of the pasture, and eventually the commons will be destroyed.

Since the dominant strategy in a social dilemma is to act in one's own self-interest (Hamburger, 1973), early social dilemma research focused on the "free-rider hypothesis". This hypothesis predicts that people are

independent, rational, profit-seeking decision makers who will not cooperate (i.e., not help provide or maintain a collective good). In essence, this hypothesis predicts that people will never cooperate in a dilemma situation. However, a series of later studies indicated that cooperation in a dilemma situation was not always zero (Marwell & Ames, 1979, 1980).

In addition, studies have shown that other variables also influence the rate of cooperation. Rapoport et al. (1962) and Bixentine et al. (1966) noted a greater degree of cooperation in two-person dilemma games than in comparable three- and six-person dilemma games. An inverse relation between group size and cooperation was also reported by Marwell and Schmidt (1972) who studied two- and three-person uniform dilemma games.

Edney and Harper (1978) studied the effect of communication on cooperation. In their study participants were asked to play a game where they could take or refrain from taking points from a common pool that replenished itself in proportion to the number of points remaining. Groups that were allowed to communicate exhibited more communication and "harvested" more points. Relatedly, Dawes, Van de Kragt, and Orbell (1988) suggested that during communication a consensus of promising to cooperate indicates group identity, and this group identity either interacts with cooperative commitments

to make the commitments effective, or may in itself be sufficient to elicit cooperation.

Several studies compared private with public choice and found higher rates of cooperation when choice was public (e.g., Fox & Guyer, 1978). However, it was noted that the difference was minimal and may have been greater if participant's payoffs were significantly larger. Rapoport (1987) purported that manipulating the reward structure or payoffs of the choice should influence cooperation. Three paradigms were discussed and labeled "fear plus greed", "no fear", and "no greed". In the fear plus greed paradigm (i.e., a typical social dilemma), each of the players receives a sum of money and then may choose independently and anonymously whether to contribute it to a monetary public good. The good is provided to all the players if a specified number of players or more contributes. In the "no fear" paradigm, the opportunity to free-ride is maintained, but players are protected from having their contribution wasted. The "no greed" paradigm does not protect players from wasting their contributions, but does not permit players to free-ride. Whereas it is predicted both the no fear and no greed paradigms will increase cooperation, the no fear paradigm should elicit more cooperation since an individual will not lose or waste their contribution. However, research results have shown that only the no greed condition led to greater cooperation (Simmons et al., cited in Rapoport, 1987).

Whether a player perceives a loss or gain of their contribution has been traced to the inherently different decision formulations (framing) of the various types of social dilemmas (Kahneman & Tversky, 1982). Although social dilemmas may be classified in a variety of ways (Messick & Brewer, 1983), two basic types of social dilemmas are frequently studied, the "public goods problem" (e.g., Chamberlain, 1984) and the "commons dilemma" (e.g., Dawes, 1980). The former involves the individual decision of whether to contribute to a common resource, and the latter a decision to take from a common resource. Examples of the public goods problem include the decision to contribute to charity and medical research, and examples of the commons dilemma include the decision to participate in recycling and energy conservation efforts.

The public goods and the commons dilemma can be perceived to provide individuals with a rationally or economically equivalent decision and outcome (Brewer & Kramer, 1986). In a public goods dilemma, people must decide whether to give up an immediate benefit to themselves (donate money) for the collective good in the long run. People faced with a commons dilemma must decide whether to accept a smaller benefit for themselves (recycle) in order to sustain a collective resource and accrue larger benefits in the future. Thus, individuals faced with either dilemma will have less for themselves in the short run if they choose to

act in the collective interest. However, prospect theory (Kahneman and Tversky, 1984) suggests that although the two dilemmas provide the same objective outcome, the decisions of the two are formulated or framed differently and may not be regarded as equivalent psychologically. That is, the initial framing of a decision may influence the choice preferences of individuals.

According to prospect theory, a persons utility or value function is concave above his/her reference points (current worth) and convex below them. Thus a value function for gains is different than a value function for losses. Therefore, when a decision is initially formulated in terms of immediate losses, an individual may prefer to select an alternative that is "risk-seeking". This means, an individual will experience "escalation" or the tendency to not want to accept immediate certain loss and prefer a gamble that may either result in larger future losses or few if any losses (Jackson, 1988). Conversely, when a decision is initially formulated in terms of immediate gains, an individual may prefer to select an alternative that is "risk-averse" (i.e., a sure thing). Prospect theory would predict that a public goods problem, which frames the initial decision in terms of an immediate small loss for uncertain future benefits, should tend to elicit more selfish (risk-seeking) choices than does a commons dilemma which frames the initial decision in terms of smaller immediate gain to

prevent detrimental consequences in the future. Despite the strong framing effects reported by Kahneman and Tversky (1984), research regarding the impact of decision framing on choice behavior (i.e., cooperate/act for the collective good or defect/act out of self-interest) has provided equivocal results (Schwartz-Shea & Simmons, 1986).

Inconsistent framing effects have been argued to stem from the inability to identify the more or less risky choice in the game paradigms (i.e., the "give-some" game for the public goods dilemma and the "take-some" game for the commons dilemma) used to study social dilemmas (Rutte, Wilke, & Messick, 1987). The give-some and take-some games are "N-person dilemma games" that present groups of people with an interdependent choice and outcome. In the give-some game each person is presented with an initial choice to either give or not give a specified amount of money back to the experimenter, and in the take-some game the initial choice is to take or not take a specified amount from a common pool of money. In both games, the cooperative choice results in a smaller individual gain than the non cooperative choice, but if all players decide to not cooperate, the individual payoff is less than if all decided to cooperate. The games are interdependent because each persons resultant outcome is contingent upon the choice of each other group member. Therefore, the argument for the ambiguity of the meaning for the amount initially given or taken (i.e., a large or small

amount can be considered a risky decision), is invalid for studies using games such as the give-some and take-some game because players initially give or take a fixed amount.

McDaniel and Sistrunk (1991) attributed the absence of reliable framing effects to "inadequately established reference points." In other words, they postulated that the instability of a collective payoff over iterated trials of a dilemma game combined with varying amounts of individual contributions or withdrawals from the collective resource may lead to inequivalent gains and losses. By controlling for instability and variability, they evidenced reliable framing effects. Consistent with prospect theory, they found individuals were more willing to contribute to a collective good than to experience some personal loss to avoid the destruction of an existing collective good. Also, across both the public goods and commons dilemmas, individual member's level of cooperation increased when higher proportions of others were expected to cooperate.

In contrast to the latter finding of McDaniel and Sistrunk, earlier work by Fleishman (1988) indicated that when others were expected to cooperate, individuals would conform to others' behavior when faced with a commons dilemma, but act contrary to others' behavior when they could give to a public good. Although the results of this study were also consistent with the framing effects predicted by prospect theory, Fleishman speculated that ethical

implications of actions may also influence cooperative decisions. He stated "A nonaction [or action] by others may be sufficient justification for acting inappropriately [or appropriately] oneself; [however], when others are not generous, one can feel morally superior by giving to a collective effort." As a result, Fleishman suggested that ethical/moral orientations should be incorporated into any model for a social dilemma decision-making process and thus studied more extensively.

Interestingly, the effect of the ethical implications of actions had been touched upon in earlier studies on "moralizing". Studies on the effects of moralizing (see review by Dawes, 1981) attempted to see if a sermon about ethics, group benefit, exploitation, whales, and so on influenced individual choice behavior in a social dilemma. It was reported that these sermons increased the rate of cooperation. Unfortunately, the results of this study are in an unpublished manuscript and there have been no further studies to assess why these sermons worked.

Further studies assessing the effects of sermons or other forms of communicated persuasive appeals on social dilemma decision-making are needed because of the vast body of literature on the message-learning approach indicating such appeals are effective means of influencing people. According to the message-learning approach, "persuasive contexts (e.g., sources and messages) question a recipient's



initial attitude, recommend the adoption of a new attitude, and provide incentives (e.g., promises to reduce an unpleasant drive-state such as fear) for attending to, yielding to, and retaining the new rather than the initial attitude" (Petty & Cacioppo, pg. 60, 1981). In regards to the persuasive context of a message, the type and extent of a message's characteristics (factors) influence how effective a message may be in changing one's beliefs, attitudes, and/or behaviors.

A persuasive message is more effective when it can be easily comprehended (Gardner, 1966). The importance of message comprehension was highlighted by a study by Eagly (1974). In this study, participants were presented with one of three versions of a message advocating that people need much less sleep than they typically get. One group of participants heard a highly comprehensible version (a reasoned sequence of arguments), a second group heard a moderately comprehensible version (the sentences were split in half and randomly put back together so that they "appeared" to make sense), and a third group heard a poorly comprehensible version of the message (the words of all the sentences were completely randomized). Not surprisingly, the participants in the high comprehensibility condition were the most persuaded and recalled the most message arguments.

The likelihood of changing a person's attitude also increases as the number of arguments increases - sometimes.

Calder, Insko, and Yandell (1974) conducted a study in which participants served as "jurors" in a simulated bigamy trial and heard either one or seven arguments favoring either the defense or the prosecution. They found that the side having the most arguments for its case was the most persuasive.

In contrast, Norman (1976) had participants read a statement made by either an expert or a physically attractive source. Both statements advocated people need less than 8 hours of sleep. However, half the participants only read the statement and the other half also read a three and one-half page message containing six arguments for sleeping less. Whereas participants agreed with the advocated statement from the attractive source regardless of whether supporting arguments were provided, the provision of supporting arguments increased the persuasive impact of the statement when it was from an expert. It was reasoned that an expert source may be more persuasive than an attractive source because he/she causes recipients to attend to and think about the reasons provided for adopting a recommendation. However, given an expert source, one should be careful to not provide too many arguments because this could lead to boredom and irritation of the recipient (Cacioppo & Petty, 1979b).

Several other message factors have been found to increase persuasion. A one-sided message tends to be more persuasive for people who initially agree with the advocacy and two-sided messages seem to be more persuasive for people

who initially disagree (Lumsdaine & Janis, 1953). A conclusion to a message usually helps a recipient understand and remember fully the message arguments and advocacy (e.g. Hovland & Mandell, 1952); however, if a recipient draws a conclusion on his/her own, a higher degree of persuasion is likely than if the conclusion was drawn by the source (e.g., Linder & Worchel, 1970). Miller and Campbell (1959) purported a "primacy" and "recency" effect of messages on persuasion. In other words, their study resulted in participants being persuaded more by the first and the last message of a series of messages heard over time. Finally, a substantial amount of literature has assessed and demonstrated the effectiveness of messages that arouse and reduce fear or emphasize the positive consequences of a communicator's recommendation. Such messages are called fear appeals and positive appeals, respectively.

One of the first studies on fear appeals and attitude change was the classic experiment by Janis and Feshbach (1953). In their study they postulated that fear appeals entail the implicit use of aroused emotional tension to more highly motivate recipients to accept reassuring beliefs or recommendations advocated by a communicator (source). To test their hypothesis, they created three similar forms of a communication recommending good oral hygiene. Each of the messages had the same basic information about the causes of tooth decay and the same recommendations concerning dental

practices, but differed in the amount of fear-arousing material that was included. The high-fear message included discussions of how poor dental hygiene can lead to diseased gums, painful toothaches, and spreading infections that may result in secondary infections causing such things as arthritic paralysis, kidney damage, or total blindness. The moderate message described the same dangers as the high-fear message but did so in a more detached factual fashion. Finally, the low-fear message discussed primarily neutral information about the growth and function of teeth. Janis and Feshbach found a marginally significant difference ( $P < .10$ ) between the three messages that suggested the low-fear appeal was most effective in influencing the practice of good oral hygiene. They argued that the high-fear message was too disturbing and frightening, and it created defensive avoidance or the desire to avoid thinking about the issue(s).

Further research on fear appeals found that high-fear appeals were typically more effective than low or moderate appeals (Leventhal, 1970). Janis and Feshbach's findings were attributed to the fact that although their study's high-fear message made recipients uncomfortable about their oral hygiene, the message did not provide any recommended means of protection. Generally, a high-fear appeal will be an effective means of persuasion if the message describes: 1) the unfavorableness of the consequences that will occur if the recommended actions are not adopted; 2) the likelihood

that the consequences will occur if the recommended actions are not adopted; and 3) the likelihood that the consequences will not occur if the recommended actions are adopted (Hass, Bagley, & Rogers, 1975; Rogers, 1975; Rogers & Mewborn, 1976). In short, a message arouses fear in a person by questioning the adaptiveness of the current situational context (Mewborn & Rogers, 1979).

The fear appeals counterpart, the positive appeal, also has been assumed to be an effective persuasive factor when similar criteria are met (Jackson, 1988). That is, a positive persuasive appeal (i.e., a message that emphasizes the positive consequences of a communicator's recommendation) should be effective in inducing attitude change when the message describes: 1) the favorableness of the consequences that will occur if the recommended actions are adopted; 2) the likelihood that the consequences will occur if the recommended actions are adopted; and 3) the likelihood that the consequences will not occur if the recommended actions are not adopted. In contrast to the research on fear appeals, the amount of literature is minimal and the results on the effects of positive appeals have been dubious at best.

Some studies on positive appeals have suggested that they have no consistent effect on attitude and behavior change (Perkins & Scott, 1986). In addition, positive appeals are typically less persuasive than comparable fear appeals (e.g., Robberson & Rogers, 1988). However, there are

studies that have indicated positive appeals may be just as effective if not more effective than a fear appeal (e.g., Evans, 1980). The unequivocal results regarding positive appeals should be interpreted with caution because most of the research seems to have focused on the promotion of health behaviors (e.g., not smoking and exercise). Positive appeals may demonstrate more consistent persuasive effects and/or greater persuasive effects than a fear appeal in another context (e.g., a social dilemma).

Since reliable framing effects have been demonstrated throughout much of the social dilemma literature and there is a lack of research regarding the effects of persuasive appeals on dilemma choice and positive appeals in general, the present study utilized the framework and predictions outlined by prospect theory to investigate if two appeals (i.e., negative/fear-arousing/losses oriented and positive/moral/gains oriented ) may influence cooperative behavior in a public goods and commons dilemma. More specifically, the intent of this study was to assess whether the content of a message (e.g., fear-arousing, or positive and ethical/moral as suggested by Fleishman, 1988) that promotes cooperation will override the payoff structure of a dilemma that promotes non cooperative behavior, and thus lead to a higher rate of observed cooperation.

The following was predicted. 1) A fear appeal emphasizing individual losses would yield higher rates of

cooperation in the public goods problem (give-some game).

This is because the public goods decision is initially framed in terms of an individual accruing a small loss to avoid a larger loss, and as a result, the individual tends to attempt to avoid the initial loss by seeking a risk that may result in either larger or few if any losses. A fear appeal emphasizing loss may make the individual more aware of the potential for the larger losses of a risky decision and thus more risk-averse (cooperative). 2) Similarly, the positive appeal would elicit greater cooperation from individuals confronted with the commons dilemma (take-some game). In contrast to the public goods problem, the commons dilemma initially frames the decision in terms of smaller immediate individual gain to avoid future detrimental consequences. As a result of this framing, individuals tend to be risk-averse and settle for the "sure thing". A positive appeal emphasizing gains may reinforce the notion that gains are favorable.

## CHAPTER 2

### METHODS

#### Participants

Participants were 180 students from Loyola University Chicago who were enrolled in Psychology 101, and able to participate in experiments for class credit.

#### Materials

The design of the study was a 2 x 3 factorial, crossing type of task (give-some versus take-some) with message type (positive/gains oriented versus negative/losses oriented versus no message).

The following materials were used for the study: a negative and positive persuasive appeal (Appendices A and B); give-some and take-some game instructions (Appendices C and D); and a post-game questionnaire (Appendices E, F, and G). Both the appeals and the game instructions were developed through a series of focus groups conducted at the College of Lake County, Grayslake, Il.



The persuasive appeals were developed by asking three classes of psychology students (two introductory classes and one social psychology class) to rate a series of experiences as either negative (i.e., an experience resulting in a personal loss) or positive (i.e., an experience resulting in a personal gain), and then list as many as three individual costs or benefits of the experience. For example, the students were asked to rate experiences such as fighting and not fighting with a friend, being drafted and not drafted into the armed services, and contributing and not contributing to the maintenance of the environment. Those experiences and costs most frequently perceived as negative were used to create the negative/losses oriented message appeal and those experiences and benefits most frequently perceived as positive formed the positive/gains oriented message appeal.

The game instructions were first developed by the author and then modified by asking the three classes of students for feedback on the clarity and comprehension of the instructions, and the ability to confidently understand and play the game. Final modifications were made via suggestions from various other persons (e.g., professors, other researchers, and professional writers and editors).

For the give-some game, participants read that they were to earn as much money as possible. The amount earned was contingent upon a decision by each group member. Every

group member had to decide to either "keep" or "give" \$3 provided by the experimenter. For each group member that gave the \$3 back to the experimenter, the experimenter awarded \$2 to all group members. Thus, if everyone gave, everyone would make \$6. If a group member kept the \$3 from the experimenter, the individual would earn either \$3, \$5, or \$7 for 0, 1, and 2 givers respectively. Table 1 below illustrates the game's payoff structure.

For the take-some game, participants also read that they were to earn as much money as possible, and that the amount earned would be contingent upon a decision by each group member. The difference was that every group member was to decide to "not take" or "take" \$3 from a pool of money provided by the experimenter. For each group member that did not take the \$3, a dividend of \$2 was awarded to all group members. Thus, if everyone did not take, everyone would make \$6. If a group member took the \$3 from the pool, the individual would earn \$3, \$5, or \$7 for 0, 1, and 2 non-takers respectively.

TABLE 1

PAYOFF MATRIX FOR "THE GIVE-SOME &amp; TAKE-SOME GAMES"

# OF GIVERS/NONTAKERS	\$ TO KEEPERS/TAKERS	\$ TO GIVERS/NONTAKERS
3	-----	\$ 6.00
2	\$ 7.00	\$ 4.00
1	\$ 5.00	\$ 2.00
0	\$ 3.00	-----

Note that the payoff structures for both game conditions were identical. The only difference between the games was that the give-some game was initially framed in terms of losses and the take-some game was initially framed in terms of gains.

#### Procedure

Participants arrived in groups of three and were randomly assigned to one of the six experimental conditions. Regardless of the condition, each session began with the experimenter stating that the study addresses influences on decision making. In addition, it was stressed that there was to be no talking until the end of the experiment. However, prior to the playing of the game, questions concerning the game instructions were permitted.

After these general instructions, the actual experiment began. One third of the groups received and read either a positive appeal, a negative appeal, or no appeal at all. The appeals were virtually identical in terms of length and content. The only difference between the appeals was that the positive appeal emphasized the individual gains associated with acting for the collective good, and the negative appeal emphasized the individual losses associated with selfish behavior. When all the participants finished reading the appeal, the experimenter collected it and distributed the instructions for the game task.

Half of the participants received the give-some game instructions and the other half received the take-some game instructions. The experimenter read the game instruction to the players, and then each player was asked to anonymously make their choice. However, groups that did not receive cash payments were told the final outcome of the game. Groups receiving payments were not told the outcome of the game and payments were distributed privately. In order to accomplish this, each group member recorded their decision on a ballot that was coded with a number. The experimenter collected the ballots, determined the outcome, and put the appropriate payments (see below) in envelopes with numbers corresponding to the ballots and players.

Each session had only about a 17% chance of receiving cash payoffs. In order to determine whether a session of

players was to receive cash for their play, a die was tossed twice at the conclusion of the game. If the second roll of the die matched the first roll, each player received a cash payment that matched their earned payoff. No payments were distributed if the two rolls of the die did not produce identical numbers.

Participants were also asked to fill out a post-game questionnaire. Those participants that read a persuasive appeal received a questionnaire with the following questions: 1) How clear were the game instructions?; 2) How clear were the game payoffs?; 3) Do you think the game presented an opportunity to gain or lose money?; 4) What do you think was the aim of the games decision task?; 5) Did you expect others to give/not take or keep/take?; 6) How clear was the message content?; 7) Was it easy or difficult to read the message?; 8) Was there a relationship between the message and the game?; 9) Did you agree with the message; and 10) How believable was the message?

Each of the ten questions had a bi-polar, semantic differential scale ranging from 1 to 7 where 1 was the most positive (better/more) response and 7 was the most negative (worse/less) response. For example question three above had a rating scale anchored by "gain" (1) and "lose" (7), and questions one and six were anchored by "clear" (1) and "unclear" (7). In addition to the 10 questions, the questionnaire also presented a list of ten descriptive

adjectives for the messages. Each participant was asked to pick all the adjectives that described the message that was read. As for the post-game questionnaire for the no message conditions, it only contained questions 1 - 5 above since the remaining questions pertained to the messages only.

After all participants completed the questionnaire and/or payments were distributed, they were debriefed orally and with a written description of the study. When there were no more questions by the participants, they were thanked and excused.

## CHAPTER 3

### RESULTS

Game type (2) by message type (3) analysis of variances were performed on all the dependent variables described below. Since there were no significant main effects or interactions for all but one dependent variable, the means of the dependent variables have been provided in Tables 2 and 3 below to clearly illustrate trends in the data. For those analyses involving participant's decisions (i.e., defect or cooperate), the dependent variable was the dichotomous decision to take (defect) or not take (cooperate) in the take-some game and keep or give in the give-some game.

TABLE 2  
AVERAGE NUMBER OF COOPERATORS

GAME TYPE	NO MESSAGE	POSITIVE MESSAGE	NEGATIVE MESSAGE	GAME MEAN
TAKE-SOME	0.80	1.2	1.2	1.07
GIVE-SOME	0.60	1.2	1.3	1.03
MESSAGE MEAN	0.70	1.2	1.25	1.05

### Cooperative Decisions

Although there was no significant difference in the rate of cooperation between the various conditions, Table 2 exhibits an interesting data pattern. Given either message, the rate of cooperation ( $M = 1.2$  and  $M = 1.25$ ) is greater (though not significantly so) than that in the no message conditions ( $M = 0.70$ ). That is, it appears the two appeals (i.e., negative and positive) promote a somewhat greater degree of cooperation. This is consistent with other studies such as those on the effects of moralizing (see review by Dawes, 1981).

It should be noted that both the negative and positive message conditions exhibited practically the same rate of cooperation. This was contrary to expectation and surprisingly so because chi-square analyses indicated that the messages were perceived as significantly and correctly different (i.e., as negative or positive) by the study participants. Table 4 illustrates the frequency of the selection of adjectives used to describe the messages as well as the obtained chi-square values. The negative message was perceived to be significantly more negative, pessimistic, fearful, and depressing than the positive message, and the positive message was seen as significantly more positive, and optimistic than the negative message.



TABLE 3

MEAN RATINGS FOR POST-GAME QUESTIONNAIRE ITEM VARIABLES 1-5

QUESTION	GAME TYPE	NO MESSAGE	POSITIVE MESSAGE	NEGATIVE MESSAGE	GAME MEAN
Clarity of Game Instructions (Clear vs. Not Clear)	TAKE-SOME	3.13	2.30	2.17	2.53
	GIVE-SOME	2.50	2.17	1.96	2.21
	MESSAGE MEAN	2.82	2.24	2.07	2.37
Clarity of Game Payoffs (Clear vs. Not Clear)	TAKE-SOME	2.70	2.20	2.07	2.32
	GIVE-SOME	2.30	1.80	2.03	2.04
	MESSAGE MEAN	2.50	2.00	2.05	2.18
Perceived Opportunity of Game (Gain vs. Lose)	TAKE-SOME	2.77	2.77	2.67	2.74
	GIVE-SOME	2.23	2.40	2.40	2.34
	MESSAGE MEAN	2.50	2.61	2.54	2.54
Perceived Aim of Game (Gain vs. lose)	TAKE-SOME	2.97	3.67	3.67	3.45
	GIVE-SOME	2.80	2.93	3.13	2.95
	MESSAGE MEAN	2.89	3.30	3.25	3.20
Expected Decision of Others (Give/Not Take vs. Keep/Take)	TAKE-SOME	3.73	2.80	3.50	3.34
	GIVE-SOME	3.23	3.60	3.13	3.32
	MESSAGE MEAN	3.48	3.20	3.32	3.33

TABLE 3 (CONTINUED)

MEAN RATINGS FOR POST-GAME QUESTIONNAIRE ITEM VARIABLES 6-10

QUESTION	GAME TYPE	NO MESSAGE	POSITIVE MESSAGE	NEGATIVE MESSAGE	GAME MEAN
Clarity of Message Content	TAKE-SOME	----	2.57	2.67	2.62
	GIVE-SOME	----	2.77	2.47	2.62
	MESSAGE MEAN	----	2.67	2.57	2.62
Difficulty of Message Reading	TAKE-SOME	----	2.37	2.56	2.46
	GIVE-SOME	----	2.26	2.10	2.18
	MESSAGE MEAN	----	2.32	2.33	2.32
Perceived Relationship Between Message and Game	TAKE-SOME	----	2.47	2.67	2.57
	GIVE-SOME	----	2.27	2.20	2.24
	MESSAGE MEAN	----	2.37	2.44	2.40
Agreeance with the Message	TAKE-SOME	----	3.47	2.87	3.17
	GIVE-SOME	----	2.93	2.83	2.88
	MESSAGE MEAN	----	3.20	2.85	3.02
Believability of the Message	TAKE-SOME	----	3.37	2.80	3.08
	GIVE-SOME	----	3.20	2.80	3.00
	MESSAGE MEAN	----	3.29	2.80	3.04

Manipulation Checks and Expectations

The comparability of the games and messages was assessed by measuring the perceived similarities among the games and among the messages. The variables assessed were the clarity of the game instructions, the clarity of the game payoff structures, the perceived opportunity of the game (i.e., the opportunity to gain or lose money), the perceived aim of the game's decision task, the expected choice of the other players, the clarity of the message content, the understandability of the message, the perceived relationship between the game and message, and the extent of message acceptance and credibility.

The game instructions were significantly less clear ( $F(1,54)=4.25$ ,  $p < .02$ ) in the no message conditions than in either of the message conditions. However, the game instructions were about equally clear in the positive message condition ( $M = 2.24$ ) and the negative message condition ( $M = 2.07$ ). This suggests that the messages may have enhanced the clarity of the instructions by providing real life examples of the game.

Although none of the remaining manipulation checks produced significant outcomes, several mentionable trends and data patterns emerged. Table 3 above contains the means of these variables for each experimental condition.

TABLE 4

## PARTICIPANTS' PERCEPTIONS OF THE PERSUASIVE APPEALS

PERCEPTION (ADJECTIVE)	POSITIVE MESSAGE (% YES)	NEGATIVE MESSAGE (% YES)	CHI- SQUARE VALUE (DF =1)
Message seen as positive	77%	39%	17.34**
Message seen as negative	10%	24%	4.01*
Message seen as moralistic	40%	56%	3.03
Message seen as optimistic	58%	24%	14.71**
Message seen as pessimistic	3%	24%	10.63**
Message seen as fearful	5%	22%	7.42**
Message seen as ethical	47%	41%	0.43
Message seen as enlightening	13%	15%	0.09
Message seen as persuasive	55%	47%	0.68
Message seen as depressing	2%	27%	15.74**

NOTE: '\*' signifies  $p < .05$  and '\*\*' signifies  $p < .01$

The game payoffs were marginally less clear in the no message conditions ( $F(1,54)=2.48$ ,  $p < .09$ ). Again, it seems as if the messages may have made the game instructions easier to understand. Also, the give-some game payoffs were rated as slightly more clear ( $M = 2.04$ ) than the take-some game payoffs ( $M = 2.32$ ). This may be attributed to the fact that

the give-some game instructions were less convoluted. That is, the take-some game instructions included a reference to a "pool" of money/resources that grew with cooperative choices and diminished with defective choices, and the give-some game did not.

The give-some game was perceived as presenting a marginally greater opportunity to gain money ( $F(1,54)=2.80$ ,  $P < .10$ ). Also, the aim of the give-some game's decisional task was seen as that of acquiring gains ( $F(1,54)=3.57$ ,  $P < .06$ ). These trends support prospect theory (Kahneman & Tversky, 1984) which states that the give-some game's initial decision is framed as an opportunity to avoid a larger loss (i.e., gain money) by incurring an initial small loss.

As for the expected choice of the other players, players in both game conditions had a slight expectation ( $M = 3.34$  and  $M = 3.32$ ) of cooperative behavior (i.e., not take or give). This contradicts prospect theory in that the framing of the take-some game should lead to less cooperative behavior as thus an expectation of less cooperation from others.

In regards to the message variables, the positive message ( $M = 2.67$ ) and the negative message ( $M = 2.57$ ) had approximately the same level of content clarity ( $F(1,36)=0.14$ ,  $P < .70$ ). Also, players tended to agree more ( $F(1,36)=1.56$ ,  $P < .21$ ) with the negative message ( $M = 2.85$ )

than the positive message ( $M = 3.2$ ). Finally, the negative message ( $M = 2.8$ ) was rated as more credible ( $F(1,36)=3.61$ ,  $P < .06$ ) than the positive message ( $M = 3.29$ ). The latter two findings are consistent with previous research regarding the effect of persuasive appeals.

## CHAPTER 4

### DISCUSSION

Although the main predictions of this study were not borne out, there was a trend for a main effect of message type. Both the negative and positive message conditions had approximately the same rate of cooperation, and this level of cooperation was slightly greater than that in the no message conditions. This finding is consistent with the literature on the effects of positive, moralistic message appeals (see review by Dawes, 1981) and fear-arousing appeals (e.g., Rogers and Mewborn, 1976). Significant results supporting previous research may have been obtained if some of this studies limitations could have been controlled.

First, there may have been a problem with statistical power. Although, 10 observations per condition is the recommended minimum for having adequate statistical power to detect a significant difference (Lipsey, 1990), more observations (e.g., 20) may have elicited significant findings.

Second, there was minimal ecological validity. That is, there were only three people per group and the group members

were playing with a small amount of money that was not their own. In actuality, a social dilemma would entail much larger groups and greater amounts of personal money or resources. More participants per group and larger sums of money for the game's payoffs may have produced significant differences between the study conditions.

Third, contrary to the participants of other studies (e.g., Kahneman & Tversky, 1984), participants of this study did not perceive the games as presenting different opportunities and goals. This may be attributed to the fact that this study utilized a one-shot methodology. That is, the participants of this study only played the game once. Social dilemma studies typically use a methodology that includes several iterations of the game (e.g., Brewer, & Kramer, 1986). Therefore, it may be necessary for participants to play several iterations of the game before they fully understand it and an effect can be pulled.

Relatedly, dilemma games usually start with the players either receiving some money (the give-some game) or seeing some common resource of money or points (the take-some game). In this study, the players started with hypothetical money for both games, and only received actual money for a "lucky" role of a die. Tangible materials and rewards may be influential factors in obtaining a framing (game) effect.



Finally, a message effect may not have been obtained because of the content of this study's messages. Fishbein and Ajzen (1975 and 1981) have argued that in order to change behavior, you need to change the specific beliefs that underlie the behavior. There is no evidence indicating that this study's participants had their beliefs changed about anything, much less the beliefs that were relevant and important to game behavior.

In sum, although there was a failure to find evidence supporting the effects of decision framing and persuasive appeals on choice behavior in a social dilemma, there was an interesting message trend that emerged. Further studies with less methodological flaws need to be conducted in order to more thoroughly and accurately assess the effect of persuasive message appeals on the choice behavior in social dilemmas.

APPENDIX A  
NEGATIVE MESSAGE APPEAL

To Cooperate or Not, That is the Question

Cooperation is one of the first lessons that every child is taught as early as kindergarten or the first grade. Ironically, it is a behavior that many neglect throughout their lives or abandon later in life. One explanation for this neglect of cooperative behavior is that people are not aware of the ramifications associated with a lack of cooperation. The following are four examples of how a lack of cooperation leads to extremely likely individual losses.

1) A confrontation among friends or family members is often the result of a lack of cooperation. When two or more people are unwilling to work together to reach an understanding or a compromise, emotions run high and tempers begin to flare. Everyone involved will most likely suffer some type of loss. For example, fights usually result in one or more of the following: the end of a great friendship or relationship; regret; the loss of the ability to maintain self-

control/reason, and a decrease in self-respect and the respect of mutual friends or others.

2) "War," an extremely large-scale confrontation, is also the result of non-cooperative behavior and, obviously, the individual consequences are more severe than a two or three person quarrel.

The loss of one's life is highly probable during war time as is the loss of family and friends. Also, the militarized individual must give up his/her freedom, and dignity and is often required to engage in activities that defy all of his/her ideologies, morals, values, and beliefs. For those fortunate enough to physically and mentally survive combat duty during a war, there is still the irreplaceable loss of time. That is to say, the loss of time that could have been spent enjoying family and friends, pursuing interests, and obtaining goals.

3) The quality of our environment is also contingent upon cooperation. This is because the maintenance, preservation and improvement of the environment takes consideration, contributions, and efforts from all of society's members. Obviously, there has not been enough cooperation to date as is evidenced by the current state of the environment. Every individual member of society has experienced a gradual yet steady loss in the quality of air and water. Additionally, oxygen-producing rain forests are being destroyed, the ozone

is depleting, resources are becoming exhausted, and landfills and dumps are reaching maximum capacity as new sites are becoming scarce. All of these environmental conditions are undoubtedly health hazards for all inhabitants of the planet.

In addition to the obvious health hazards, each individual that does not help maintain the environment incurs many psychological losses. Many people often report that a lack of involvement and concern results in decreased self-esteem, self-respect, and social approval.

4) Advances in medicine, and the alleviation of social problems also require cooperative efforts from all members of society. If resources such as funding and manpower for research institutions and charitable organizations are insubstantial or unavailable, every individual has an increased chance of suffering tremendous personal losses. The most prominent and detrimental losses are to advances in medicine, and technology. These losses consequently lead to a less comfortable life and a possible premature death.

For those fortunate enough to avoid chronic or terminal illness, the failure to contribute to research institutions and charitable organizations entails psychological losses. For example, not contributing has been attributed to the lack or loss of empathy (the ability to identify with another) and the lack of sympathy (the ability to share another's ideas and feelings). Decreased feelings of satisfaction, pride,

involvement, and concern for others have also been linked not contributing.

These examples illustrate that a lack of cooperation definitely leads to individual losses. If people were more aware of these losses, cooperation among people might be enhanced.

APPENDIX B  
POSITIVE MESSAGE APPEAL

To Cooperate or Not, That is the Question

Cooperation is one of the first lessons that every child is taught as early as kindergarten or the first grade. Ironically, it is a behavior that many neglect throughout their lives or abandon later in life. One explanation for this neglect of cooperative behavior is that people are not aware of the positive consequences associated with cooperation. The following are four examples of how cooperation leads to extremely likely individual gains.

1) The avoidance of a confrontation with friends or family members is often the result of cooperation. When two or more people are willing to work together to reach an understanding or a compromise, emotions remain stable and tempers do not flare. Each individual involved will most likely receive some type of gain. For example, avoiding a fight usually results in one or more of the following: the maintenance or strengthening of a great friendship or relationship, peace and understanding, the ability to maintain or gain self-

control/reason, and an increase in self-respect and the respect of mutual friends or others.

2) Avoiding "war" an extremely large scale confrontation, is also the result of cooperative behavior and, obviously, the individual rewards or "gains" are greater than those associated with avoiding a two or three person quarrel.

Sparing one's life and those of family and friends are gains resulting from the avoidance of war. Also, an individual civilian (as opposed to a serviceman) is able to maintain his/her freedom and dignity, and advance his/her ideologies, morals, values, and beliefs. Lastly, there is the gain of time. That is to say, the gain of time spent enjoying family and friends, pursuing interests, and obtaining goals.

3) The quality of our environment is also contingent upon cooperation. This is because the maintenance, preservation and improvement of the environment takes consideration, contributions, and efforts from all of society's members. Obviously, a better environment results in greater physical health for all. If enough is done by all, every individual member of society will experience a gradual yet steady increase in the quality of air and water. In addition, oxygen producing rain forests will flourish, the ozone will stop depleting, natural resources will be plentiful, and landfills and dumps will not occupy inhabitable land.

In addition to the obvious health gains, each individual that helps maintain the environment experiences many psychological gains. Many people often report that involvement and concern results in greater self-esteem, self-respect, and social approval.

4) Advances in medicine and the alleviation of social problems also require cooperative efforts from all members of society. If resources such as funding and manpower for research institutions and charitable organizations are substantial or available, every individual has an increased chance of acquiring tremendous personal gains. The most prominent and beneficial gains are advances in medicine and technology. These gains consequently lead to a more comfortable life and the avoidance of a possible premature death.

For those fortunate enough to avoid chronic illness or disease, contributions to research institutions and charitable organizations entails definite psychological gains. For example, contributing has been attributed to the acquisition of empathy (the ability to identify with another) and the acquisition of sympathy (the ability to share another's ideas and feelings). Increased feelings of satisfaction, pride, involvement, and concern for others have also been linked to contributing.



These examples illustrate that cooperation leads to individual gains. If people were more aware of these gains, cooperation among people might be enhanced.

## APPENDIX C

### GIVE-SOME GAME INSTRUCTIONS

#### Instructions for Playing "The Give-Some Game"

The game that you are about to play is a 3-person game of choice that is characterized by a high degree of interdependence. This means that the choice you make will effect the outcomes of the other players and that the choices of the other players will effect your outcome.

The object of the game is to make as much money as you can. The game starts out with the experimenter giving each player \$3. Then, each player has two choices. The player may decide to keep the \$3, or he/she may give the \$3 back to the experimenter. If the player returns the \$3, the experimenter will then give \$2 to each player in the game. Thus, if all three players keep the \$3, then each player gets a \$3 payoff. However, if all three players give the money back to the experimenter, then each player gets \$6. Thus, players' payoffs are interdependent - they depend on the behavior of both the individual player and the behavior of the other players in the game. The payoff matrix below specifies all of the possible payoff combinations for the game.

### Payoff Matrix for "The Give Some Game"

Number of Givers	\$ To Keepers	\$ To Givers
3	-----	\$ 6.00
2	\$ 7.00	\$ 4.00
1	\$ 5.00	\$ 2.00
0	\$ 3.00	-----

In the event that 2 players "give" and 1 player "keeps," the 2 players would receive a payoff of \$4 (2 givers X \$2), and the player would receive a payoff of \$7 (2 X \$2 + \$3).

Notice the two following properties of the payoff matrix: 1) as previously mentioned, the individual payoff for all players choosing to keep is **less than** the individual payoff for all players choosing to give; and 2) the individual payoff for keeping is **greater than** the individual payoff for becoming an additional giver. Though the choice to keep results in a greater individual payoff, all players deciding to keep will provide everyone a smaller payoff than all players deciding to give.

When making your decision, you will not be able to communicate with the other players. Therefore, your decision will have to be based on the amount of money you desire and the expected choices of the other players.

To cast your decision, please write either give or keep on the numbered slip of paper that has been provided for you, and then hand it to the experimenter. Note and remember the

number on the slip of paper because after the experimenter determines the payoffs, your payoff will be put in an envelope that is marked with a number that corresponds to the number on the slip. This procedure will assure that none of the other players will know the choice you made.

Take as long as you need to make your decision and please feel free to ask the experimenter any questions that you may have.

## APPENDIX D

### TAKE-SOME GAME INSTRUCTIONS

#### Instructions for Playing "The Take-Some Game"

The game that you are about to play is a 3-person game of choice that is characterized by a high degree of interdependence. This means that the choice you make will effect the outcomes of the other players and that the choices of the other players will effect your outcome.

The object of the game is to make as much money as you can. The game starts out with the experimenter having a pool of money. Each player in the game has two choices. The player can either take \$3 from the pool or he/she can decide not to take the \$3. For each player that does not take the \$3, the pool grows and pays a \$2 dividend to each player. Thus, if all three players take \$3, then they each make \$3 in the game. However, if all three players decide not to take the \$3, then each player gets \$6 (3 non-takers X \$2 dividend). Thus, players' payoffs are interdependent - they depend on the behavior of both the individual player and the behavior of the other players in the game. The payoff matrix below specifies all of the possible payoff combinations for the game.

### Payoff Matrix for "The Take Some Game"

Number of Non-takers	\$ To Takers	\$ To Non-takers
3	-----	\$ 6.00
2	\$ 7.00	\$ 4.00
1	\$ 5.00	\$ 2.00
0	\$ 3.00	-----

In the event that 2 players decide to "not take" and 1 player decides to take, the two players would receive a \$4 payoff (2 non-takers X \$2 dividend), and the 1 player would receive a \$7 payoff (2 X \$2 + \$3).

Notice the following properties of the payoff matrix: 1) as previously mentioned, the individual payoff for all players choosing to take is **less than** the individual payoff for all players choosing not to take; and 2) the individual payoff for taking is **greater than** the individual payoff for becoming an additional non-taker. Though the choice to take results in a greater individual payoff, all players deciding to take will provide everyone a smaller payoff than all players deciding not to take.

When making your decision, you will not be able to communicate with the other players. Therefore, your decision will have to be based on the amount of money you desire and the expected choices of the other players.

To cast your decision, please write either take or not take on the numbered slip of paper that has been provided for

you, and then hand it to the experimenter. Note and remember the number on the slip of paper because after the experimenter determines the payoffs, your payoff will be put in an envelope that is marked with a number that corresponds to the number on the slip. This procedure will assure that none of the other players will know the choice you made.

Take as long as you need to make your decision and please feel free to ask the experimenter any questions that you may have.

## APPENDIX E

### POST-GAME QUESTIONNAIRE FOR THE GIVE-SOME GAME

#### Post-Game Questionnaire

Please answer the following questions that pertain to the game you just played and the message you read earlier.

1. How clear were the game instructions?

Very clear      1      2      3      4      5      6      7      Not clear

Comment(s): \_\_\_\_\_

---

2. How clear were the payoffs for the choices/decisions?

Very clear      1      2      3      4      5      6      7      Not clear

Comment(s): \_\_\_\_\_

---

3. Do you think the game presented the opportunity to lose money or gain money?

Lose      1      2      3      4      5      6      7      Gain

4. What do you think was the aim of the game's decision task?

Restrict losses 1      2      3      4      5      6      7      Acquire gains

5. Did you expect other players to give or keep?

Give 1      2      3      4      5      6      7      Keep

Comment(s): \_\_\_\_\_

---



6. How clear was the content of the message?

Very Clear      1      2      3      4      5      6      7      Not Clear

Comment(s): \_\_\_\_\_

7. Was it easy or difficult to read the message?

Difficult 1      2      3      4      5      6      7      Easy

Comment(s): \_\_\_\_\_

8. Do you feel that there was a relationship between the message and the game?

No      1      2      3      4      5      6      7      Yes

Comment(s): \_\_\_\_\_

9. Did you agree with the message you read?

Agree      1      2      3      4      5      6      7      Disagree

Comment(s): \_\_\_\_\_

10. How believable was the message you read?

Believable 1      2      3      4      5      6      7      Not Believable

Comment(s): \_\_\_\_\_

11. Please circle the characteristics that you feel best describes the message you read (CIRCLE ALL THAT APPLY).

- |               |                |                 |
|---------------|----------------|-----------------|
| A. Positive   | D. Optimistic  | G. Ethical      |
| B. Negative   | E. Pessimistic | H. Enlightening |
| C. Moralistic | F. Fearful     | I. Persuasive   |
|               |                | J. Depressing   |

## APPENDIX F

### POST-GAME QUESTIONNAIRE FOR THE TAKE-SOME GAME

#### Post-Game Questionnaire

Please answer the following questions that pertain to the game you just played and the message you read earlier.

1. How clear were the game instructions?

Very clear      1      2      3      4      5      6      7      Not clear

Comment(s) : \_\_\_\_\_

---

2. How clear were the payoffs for the choices/decisions?

Very clear      1      2      3      4      5      6      7      Not clear

Comment(s) : \_\_\_\_\_

---

3. Do you think the game presented the opportunity to lose money or gain money?

Lose      1      2      3      4      5      6      7      Gain

4. What do you think was the aim of the decision task?

Restrict losses 1      2      3      4      5      6      7 Acquire gains

5. Did you expect other players to take or not take?

Take 1      2      3      4      5      6      7      Not Take

Comment(s) : \_\_\_\_\_

---

6. How clear was the content of the message?

Very Clear      1      2      3      4      5      6      7      Not Clear

Comment(s): \_\_\_\_\_

7. Was it easy or difficult to read the message?

Difficult 1      2      3      4      5      6      7      Easy

Comment(s): \_\_\_\_\_

\_\_\_\_\_

8. Do you feel that there was a relationship between the message and the game?

No      1      2      3      4      5      6      7      Yes

Comment(s): \_\_\_\_\_

\_\_\_\_\_

9. Did you agree with the message you read?

Agree      1      2      3      4      5      6      7      Disagree

Comment(s): \_\_\_\_\_

\_\_\_\_\_

10. How believable was the message you read?

Believable 1      2      3      4      5      6      7      Not Believable

Comment(s): \_\_\_\_\_

\_\_\_\_\_

11. Please circle the characteristics that you feel best describes the message you read (YOU MAY CIRCLE MORE THAN ONE RESPONSE).

- |                |                 |
|----------------|-----------------|
| A. Positive    | F. Fearful      |
| B. Negative    | G. Ethical      |
| C. Moralistic  | H. Enlightening |
| D. Optimistic  | I. Persuasive   |
| E. Pessimistic | J. Depressing   |

## APPENDIX G

### POST-GAME QUESTIONNAIRE FOR THE NO MESSAGE CONDITIONS

#### Post-Game Questionnaire

Please answer the following questions that pertain to the game you just played.

1. How clear were the game instructions?

Very clear      1      2      3      4      5      6      7      Not clear

Comment(s): \_\_\_\_\_

---

2. How clear were the payoffs for the choices/decisions?

Very clear      1      2      3      4      5      6      7      Not clear

Comment(s): \_\_\_\_\_

---

3. Do you think the game presented the opportunity to lose money or gain money?

Lose      1      2      3      4      5      6      7      Gain

4. What do you think was the aim of the decision task?

Restrict losses 1      2      3      4      5      6      7 Acquire gains

5. Did you expect other players to take or not take?

Take/Keep 1      2      3      4      5      6      7      Not Take/Give

Comment(s): \_\_\_\_\_

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## VITA

Joseph S. Kaplan has been applying social science theory and methodology in academic and professional settings since 1989. As an undergraduate and graduate student at Loyola University Chicago, Joseph assisted various professors of psychology with their research. This research included such topics as the development of an index to predict a person's degree of persuadability, public perceptions of person's with epilepsy, and the effect of obesity on an interviewers perception of a job candidate.

In 1991, Joseph was part of a research team for the University of Illinois' Institute for the Study of Developmental Disabilities (ISDD) that conducted a training needs assessment for statewide employees of Community Integrated Living Arrangements (CILA's). Also, he worked for approximately two years at Abt Associates, Inc., where he was a research assistant for The Second National Post-secondary Study of Student Aid and Prospects, The Longitudinal Study of Educational Opportunity and Growth.

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## THESIS APPROVAL SHEET

The thesis submitted by Joseph S. Kaplan that is entitled "The Effects of Decision Framing and Persuasive Message Appeals on the Cooperation Rate of Individuals Faced with a Social Dilemma" has been read and approved by the following committee:

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is, therefore, accepted in partial fulfillment of the requirements for the degree of Master of Arts in applied social psychology.

12/7/93

Date

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